Application Serial No. 10/552,782
Response to Office Action dated October 29, 2008

PATENT
Docket: CU-4417



**AMENDMENT**

**Amendments to the Claims**

The listing of claims presented below replaces all prior versions, and listings, of claims in the application.

The Applicant wishes to make the following amendments to the claims of the above patent application:

Listing of Claims:

1. (original) A method of identifying a subset of components of a system based on data obtained from the system using at least one training sample from the system, the method comprising the steps of:

obtaining a linear combination of components of the system and weightings of the linear combination of components, the weightings having values based on data obtained from the at least one training sample, the at least one training sample having a known feature;

obtaining a model of a probability distribution of the known feature, wherein the model is conditional on the linear combination of components;

obtaining a prior distribution for the weighting of the linear combination of the components, the prior distribution comprising a hyperprior having a high probability density close to zero, the hyperprior being such that it is based on a combined Gaussian distribution and Gamma hyperprior;

combining the prior distribution and the model to generate a posterior distribution; and

identifying the subset of components based on a set of the weightings that maximise the posterior distribution.

2. (original) The method as claimed in claim 1, wherein the step of obtaining the linear combination comprises the step of using a Bayesian statistical method to estimate the weightings.

3. (previously presented) The method as claimed in claim 2, further comprising the step

of making an apriori assumption that a majority of the components are unlikely to be components that will form part of the subset of components.

4. (previously presented) The method as claimed in claim 3, wherein the hyperprior comprises one or more adjustable parameters that enable the prior distribution near zero to be varied.

5. (previously presented) The method as claimed in claim 4, wherein the model comprise a mathematical equation in the form of a likelihood function that provides the probability distribution based on data obtained from the at least one training sample.

6. (original) The method as claimed in claim 5, wherein the likelihood function is based on a previously described model for describing some probability distribution.

7. (previously presented) The method as claimed in claim 6, wherein the step of obtaining the model comprises the step of selecting the model from a group comprising a multinomial or binomial logistic regression, generalised linear model, Cox's proportional hazards model, accelerated failure model and parametric survival model.

8. (original) The method as claimed in claim 7, wherein the model based on the multinomial or binomial logistical regression is in the form of:

$$L = \prod_{i=1}^{n}\left(\prod_{g=1}^{G-1}\left\{\frac{e^{x_i^T b_g}}{\left(1+\sum_{g=1}^{G-1} e^{x_i^T b_g}\right)}\right\}^{e_{ik}}\left\{\frac{1}{1+\sum_{h=1}^{G-1} e^{x_i^T b_h}}\right\}^{e_{iG}}\right)$$

9. (original) The method as claimed in claim 7, wherein the model based on the generalised linear model is in the form of:

$$L = \log p(y \mid \beta, \varphi) = \sum_{i=1}^{N}\left\{\frac{y_i\theta_i - b(\theta_i)}{a_i(\varphi)} + c(y_i, \varphi)\right\}$$